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China's Cold Chain Logistics – The View from Beijing

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Report Highlights:
ATO Beijing has been meeting major Beijing cold chain actors and national associations based in Beijing. Although the current cold chain infrastructure is very rudimentary outside the major first-tier cities, demand from consumers for safer food is expected to fuel major improvements in the system in the years ahead. Opportunities exist in both the first tier and second tier cities. This report summarizes our current understanding of the cold chain situation from the perspective of Beijing-based actors.

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Introduction

Rising Demand for Safe Food

Over the last 30 years, China's rapid economic development has greatly improved people's living standards. As many people can increasingly afford better food products and have become more aware of environmental issues, they have become increasingly concerned about food safety and the logistics that support it. In 2007, a survey of Chinese chain stores in five major big cities of Beijing, Shanghai, Shenzhen, Wuhan and Chongqing, conducted by China Chain Store & Franchise Association (CCSFA) showed that more than 96 percent of consumers were very concerned about food safety. This is a sharp increase from 73 percent in 2005. In addition, about 75 percent of interviewees expressed a willingness to pay extra for safer food. The average willingness to pay was around 8.5 percent, which was up from 5 percent in 2005. The survey also showed that consumers chose supermarkets and hypermarkets to purchase 70 percent of all their chilled foods and 92 percent of all their frozen food because they see supermarkets and hypermarkets as having better cold chain logistics systems and food safety control and management. Other data also show high interest in safer food. Another survey conducted by A.T. Kearney in 2007 also showed that more than 95 percent of Chinese consumers ranked food safety as a "very important" criterion in their purchase behaviors. As a result, food safety is driving shoppers to modern retail formats and away from the traditional wet markets. Since consumers are increasingly willing to pay for safer food, it is very likely there will be a high demand for cold chain logistics to improve the quality of perishable food products. According to A.T. Kearney, China will need more than $100 billion in cold chain investments over the next decade.

Rising Importance of Food Safety

In recent years, food safety issues are becoming increasingly sensitive in China because of the frequent occurrence of food safety scandals. While people continue to pay attention to food safety in the food production process, they are also increasingly concerned about the logistics process.

Food safety also matters because it has the potential to create frictions in the trade relationship between China and its trading partners. An improved Chinese system, with greater equivalence and harmonization, would reduce these problems and the threats they pose to trade. Improving cold chain practices is also an opportunity. USDA China has indentified cold chain problems as a major constraint to future U.S. exports such as meat products, fruit, diary and frozen foods.

In order to advance the cold chain issue, ATO Beijing has been meeting with major cold chain logistics agencies, institutions and companies in northern China. This report focuses on the challenges and problems of China's cold chain logistics -- as well as opportunities for U.S. cold chain actors.

China's Production and Demand for Perishable Food Products

China's booming economy and rapid development of retail and wholesale consumer goods markets has changed the nature of food production in the country.

Food Production

In 2006, total production of all perishable foods was approximately 700 million tons. The total expenditure of urban residents on perishable foods was 51 percent of total food expenditures. China has more than 2,500 meat enterprises that produce over 60 million tons of meat, an amount that is increasing by five percent annually. There are more than 2,000 frozen food enterprises that produce 8.5 million tons of frozen products and more than 4,000 beverage enterprises that produce 1.5 million tons of products. Beverage production is increasing by seven percent annually. There were 1,500 dairy enterprises, producing over eight million tons of dairy products. Until the 2008 diary scandals, the industry was growing by 30 percent annually. Total aquatic product production was 44 million tons, and is increasing 4 percent annually.

Food Demand

It is estimated that the Chinese middle class of approximately 500 million will spend more than $650 billion on food annually by 2017. About 75 percent of that market is in second and third-tier cities located outside the wealthier cities such as Beijing, Guangzhou and Shanghai. Demand for chilled dairy products and fruit juices, as well as frozen foods, is growing rapidly in China, especially among urban consumers who increasingly shop at the numerous supermarkets opening up in the cities. All of these changes are leading to high demand for cold chain logistics in China. Reaching those consumers will require an efficient nationwide distribution network that still does not exist yet today.

China's Cold Chain Industry

Cold Chain History

China's cold chain was first introduced in 1950s to export meat products. Promulgation of "Food Safety Law" in 1982 marked the start-up of the modern cold chain logistics industry in China. For over 20 years, China's cold chain logistics has developed slowly. The result has been a rudimentary cold chain system established with a number of key food processing enterprises creating systems for their own products. This includes firms handling frozen food, meat processing and dairy products as well as a large number of fast food chains and supermarkets. Despite the ongoing development, China's cold chain is still highly fragmented -- with few companies having reach outside their home cities.

The logistics industry is growing rapidly. In the first half of 2007, total cargo transportation reached 10.59 billion tons, an increase of 11.9 percent from the same of period in 2006. Total value-added of logistics industry was 750.3 billion RMB, an increase of 17.2 percent compared with the first half of 2006. Although there were no separate statistics for cold chain logistics, industry sources believe it is growing much larger than for the industry as a whole. Below are some of China's largest logistics firms.

Top Ten Logistics Companies in 2007
(Source: China Logistics Development Report 2007 – 2008)

Rank	Name	Turnover 2006 (billion yuan)
1	COSCO Group	88.25
2	China Shipping Group Company	61.79
3	SinoTrans	46.29
4	China National Materials Storage and Transportation Corporation	9.04
5	China Railway Express Co., Ltd	8.13
6	China Railway Container Transport Corp. ,Ltd.	6.98
7	Air China	6.44
8	Guangdong NanYue Logistics Co.LTD	5.70
9	Yuan Cheng Group	4.62
10	SITC International Holdings Co., Ltd.	4.33

Cold Chain Issues

Although the cold chain logistics industry has continued to develop rapidly, China still faces a lot of problems and challenges. Insufficient infrastructure and poor management are regarded as significant obstacles to the development of the cold chain logistics. As a result, every year cold chain problems in China result in massive product losses. This is largely because only 15 percent of all perishable products are transported by refrigerated vehicles compared to nearly 90 percent in developed countries. Currently about 90 percent of meat products, 80 percent of aquatic products and a large amount of dairy products are managed without cold chain logistics.

It is estimated that the total output value of food was about $30 billion and that more than 20 percent of this total is lost because of poor storage. Some products have even larger losses. For example, about 25 – 30 percent of fruit and vegetables are lost in the process of harvesting, transportation and storage. Because of China's size and large scale food production, the country has a huge need for storage and transportation of perishable items.

Infrastructure problems are the result of inadequate facilities and equipment. Cold storage capacity in China covers only about 25 percent of total output, compared to 70 to 80 percent in developed countries. China currently has 30,000 refrigerated vehicles, which is only 0.3 percent of total cargo transportation. Meanwhile, there are only 6,970 refrigerated railcars, which is only 2 percent of the total 338,000 railcars. Only about 25 percent of perishable food is transported with the refrigerated railcars, which is only 1 percent of total rail transportation. The total cold storage capacity is about 7 million square meters, which is mainly used for the storage of meat and aquatic products. Most cold storage facilities are significantly out of date. As a result many products need to be moved manually and hand-stacked. The location of storage compounds the problem for Chinese producers: cold storage warehouses generally are in major port cities or first-tier markets such as Beijing, but few are close to production areas and second-tier cities are very underserved.

Both the institutions and enterprises interviewed believe that a lack of national cold chain standards negatively impacts the development of a modern cold chain industry in China. Specifically, the lack of standards makes it difficult to measure performance and monitor the market. The Chinese government has realized that the standards issue is a major constraint on the development of cold chain logistics. To remove this barrier, the central government is now working on the development of the relevant standards.

The Need for Cold Chain Services

The need for capable third-party logistics services providers (3PLs) is acute in China. The country has more than 510,000 such companies but most only offer basic transportation and storage services in a limited area. Most perishable food logistics is provided by the enterprises themselves with little involvement of 3PLs. This increases costs and diverts the enterprises from focusing on their core business. In the major cities, this pattern is shifting because of the recent financial crisis and increasing competition in the food production, food service and retailing sectors. More and more food production, service and retailing enterprises are starting to outsource cold chain logistics services to better focus on their core business. This has greatly increased demand for the professional third-party logistics services.

One example is the Beijing East Friendship Food Supply & Delivery Co., LTD (BEFFSDC), the largest food cold chain logistics company in Beijing. According to Mr. Yuan Zonghao, the deputy manager, the BEFFSDC has maintained an annual growth of more than 100 percent since the opening of the company in 2004 and is expected to maintain this high growth in 2009. To keep up with the demand, the company is looking to establish cooperation with an international strategic partner that can provide capital and help them further improve management of the business.

The Olympic Effect

The Beijing logistics sector had a special boost from the 2008 Beijing Olympic Games. During the games, local companies provided catering services for over 360,000 athletes, support personnel and media -- as well as over 10 million visitors. It was reported that 100 percent of the food met food safety qualifications. In order to guarantee food safety for 2008 Games, the Beijing municipal government activated the Olympic Food Safety Source-tracing System and erected a new set of food inspection systems that can monitor all links in food production, transportation and manufacturing. This included a universal system of transportation or cold chain logistics that were adopted to guarantee food quality. The 2008 Olympic Games greatly improved the Beijing food safety system. It is believed that Shanghai might also benefit from this introduction of best practices as it prepares for the 2010 World Expo. Although these developments are concentrated in the first-tier cities, these developments are expected to deepen the understanding of best practices of cold chain logistics in China in both short-term and long-term.

Key Findings

According to Mr. Zhang Qianming, Secretary General of Food Logistics Committee of the China Food Industry Association, the total GDP generated from the food industry from January to November 2008 was estimated at 4 trillion RMB, making it China's most important single industry. Since local food demand has been resilient in the face of the world economic crisis, the food industry also provides stability to the Chinese economy that could have been more affected by the downturn in exports. Since the food industry is important and cold chain is a major problem in food safety, it is anticipated that the food logistics, food safety and food cold chain will be important sectors of the next Five-Year Plan.

China's State Council recently announced ten industry stimulus (support) plans, one of which designed to support the logistics sector. This has been regarded by the cold chain logistics sector as an opportunity for the industry to modernize. After meeting with national cold chain actors and local Beijing actors, ATO Beijing has a few observations about the cold chain sector:

- China is beginning to set standards now. This provides a very good opportunity for the U.S. cold chain logistics actors to be involved in the development of China's standards that will greatly affect the future development of the industry.

- Chinese counterparts are willing to learn from the U.S. experience. Chinese contacts have expressed interest in: 1) The lessons and experiences of U.S. cold chain logistics industries. Local actors are interested in having the U.S. companies to set up pilot cold chain logistics enterprises to demonstrate best practice cold chain and food handling. 2) How U.S. cold chain logistics achieved the integration of cold chain logistics with other industries and reached the balance of interests among different sectors and industries. 30 The U.S. Government role coordinating and managing the development of the industry; 4) application and practical use of cold chain logistics technology in the United States.

- Chinese counterparts are interested in: 1) Establishing channels of communication with U.S cold chain logistics counterparts; 2) Cooperation on training program from U.S. cold chain experts; 3) Sending Chinese cold chain actors to study U.S. cold chain logistics and meet with the relevant cold chain agencies and companies in the United States.

- The current financial crisis will be an opportunity rather than a challenge as many enterprises are increasingly focused on their core business and are expected to seek cold chain logistics services from the 3rd party providers.

- Growth of cold chain logistics in recent years is moving from providing traditional cold storage service (most of the small and medium size cold chain logistics companies still selling simple, low value-adding traditional services) to providing modern, professional and high-value adding cold chain logistics services such as cold chain consultation, storage, transport, delivery, processing and integrated logistics solutions.

- The growth in cold chain has come from increasing market demand because of rising food safety concerns from the government and consumers. This has compelled restaurants, supermarkets, and chain stores to increase their use of cold chain logistics.

- The Chinese cold chain sector is still fragmented. Although the country has built a modern system of highways and airports, most cold chain providers work in only a single city or region. This makes it difficult to maintain a complete chain system outside a city. As a result major restaurant chains and others focused on food safety often have to “build their own infrastructure”.

- The increasing demand for cold chain logistics will spur modernization of the sector. This will promote the sales of both U.S. equipment and food products in China.

Related Reports

1. CH8629 (dated 12/10/08)
South China cold chain enters fast track, welcomes U.S. input
by Ken Chen (ATO Guangzhou)

2. CH9004 (dated 01/14/09)
Draft Food Safety Law Under Consideration
by Mark Petry (Office of Agricultural Affairs, Beijing)